

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method of decomposing an image comprising:

decomposing the image into a plurality of stripes, wherein at least one stripe of the plurality of stripes spans opposing edges of the spanning said image;

determining a layer base color, a layer size and a layer offset of at least one stripe of the plurality of stripes;

separating the stripe into a foreground layer, a background layer and a mask layer based on the layer base color and the layer offset; and

interpolating irrelevant pixel values in the foreground layer and background layer for coder efficiency.
2. (Previously Presented) The method of claim 1 further comprising:

encoding the foreground layer, background layer, and mask layer.
3. (Previously Presented) The method of claim 2 wherein the foreground layer and background layer are JPEG encoded, wherein the mask layer is JBIG encoded.
4. (Previously Presented) The method of claim 1 wherein said interpolating irrelevant pixel values further comprises:

determining the layer base color and the layer offset to a common reduced area of at least one layer to identify image and mask layer values for all regions except an overlapped common reduced area; and

separating the overlapped common reduced area into a foreground layer and a background layer.

5. (Previously Presented) The method of claim 1 wherein said interpolating irrelevant pixel values further comprises:

classifying at least one pixel within a selected block of a selected layer as relevant or irrelevant;

generating a coefficient block representing a forward transform of the selected block; and

modifying coefficient values to generate a modified coefficient block subject to a set of pre-determined constraints including a constraint that the relevant pixels have a same value in an inverse transformation of the modified coefficient block as in the selected block.

6. (Previously Presented) The method of claim 5 wherein said modifying coefficient values includes:

selecting a coefficient from the coefficient block in a reverse zig-zag order wherein the selected coefficient has a non-zero value; and

finding a feasible solution resulting in a zero quantizable selected coefficient subject to the pre-determined constraints.

7. (Original) The method of claim 5 wherein the coefficient values are modified subject to a constraint that no zero quantizable coefficient preceding the selected coefficient in the reverse zig-zag order is permitted to become non-zero quantizable.

8. (Original) The method of claim 5 wherein values of individual elements of a mask classify pixels in corresponding positions within the selected block as relevant or irrelevant.

9. (Previously Presented) The method of claim 5 further comprising: providing the modified coefficient block to a block compression process.

10. (Previously Presented) The method of claim 5 wherein said interpolating irrelevant pixel values further comprises applying a linear program to identify a feasible solution resulting in a zero-quantizable coefficient subject to the constraints.

11. (Previously Presented) The method of claim 10 further comprising applying a quadratic program to generate a modified selected block having minimal energy.

12. (Previously Presented) The method of claim 10 further comprising terminating further modifications to the coefficient block if a ratio of the energy of the modified block to the energy of the initial selected block exceeds a pre-determined threshold.

13. (Original) The method of claim 5 wherein the forward transform is one of a discrete cosine, a discrete sine, and a discrete Fourier transform.

14. (Previously Presented) A method of decomposing an image comprising:

decomposing the image into a plurality of stripes;

decomposing at least one stripe into foreground and background image layers, and a mask layer;

identifying an area of intersection of a common reduced foreground area and a common reduced background areas, wherein the identifying further comprises:

computing a maximum block range for a selected block of the area of intersection; and

assigning at least one pixel within the selected block to one of the foreground and background planes in accordance with whether the average luminance of the selected block is closer to a previous average foreground luminance or previous average background luminance,

respectively, if the maximum block range is not greater than a pre-determined threshold; and
interpolating any irrelevant pixel values within the area of intersection for coder efficiency for at least one layer.

15. (Original) The method of claim 14, wherein the area of intersection is selected to have an edge that is $8N$ pixels from at least one of an edge of the common reduced foreground area and the common reduced background area, wherein N is an integer, wherein $N \geq 0$.

16. (Previously Presented) The method of claim 14, wherein said interpolating any irrelevant pixel values further comprises:
selecting a block of pixels; and
classifying at least one pixel with the selected block as irrelevant or relevant.

17. (Previously Presented) The method of claim 16, wherein said interpolating any irrelevant pixel values further comprises:
calculating an average value of at least one relevant pixel within the selected block; and
assigning the average value to at least one irrelevant pixels within the selected block.

18. (Previously Presented) The method of claim 14, wherein said identifying an area of intersection further comprises:

- computing a maximum block range for a selected block of the area of intersection;
- dividing pixels within the selected block into a plurality of groups; and
- assigning at least one selected group to one of the foreground and background planes in accordance with a relative average luminance value of the selected group and another group, if the maximum block range exceeds a pre-determined threshold.

19. (Previously Presented) The method of claim 18, wherein said assigning at least one selected group further comprises assigning the selected group to the background layer and the other group to the foreground layer if an average luminance of the selected group is greater than an average luminance of the other group, wherein the selected group is assigned to the foreground layer and the other group to the background layer if the average luminance of the selected group is not greater than the average luminance of the other group.

20. (Cancelled)